THE MARINE RECORD.

DEVOTED TO COMMERCE, ENGINEERING AND SCIENCE.

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(ORGANIZED 1880.)

CLEVELAND VESSEL OWNERS' ASSOCIATION.

(Membership 1892.)

One hundred and sixty-three steamers, and one hundred and forty-four sail and barge, } Aggregating 298,127 tons.

Maintains shipping offices at Cleveland, Ashtabula Harbor, Fairport and Toledo. Regulates wages, protects crews and takes cognizance of all matters in the interest of the members and of the lake commerce generally.

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THE MARINE RECORD.—Official Paper.

CLEVELAND, O.

The lengthening of the large steel steamer Spokane of the Wilson Transit Line and the extensive repairs, has been completed by the Cleveland Ship Building Co., and we have authority for stating that notwithstanding her extra length, she is now, by virtue of doubling, adding steel decks, extra web-frames, and good work, even stronger than she was before. In addition to the increased dead-weight she will carry, her deck plan has been modernized by a re-arrangement of hatchways, and she is now equal in all respects to the best new steel steamer on the lakes. There is much credit due the Cleveland Ship Building Co. for the skill and workmanship displayed in drawing apart this large steel steamer, putting in a section amidships equal to the total tonnage of a small vessel and completing the hull in so limited a time and so as to make it stronger than the original construction.

The freight monitor Andaste, Capt. Miner, left port on Sunday morning for Escanaba, Mich. Mr. H. D. Coffinberry, president of the Cleveland Ship Building Co., embarked on her for the maiden trip. The passage up was made in excellent time, and she proved an easy steering, capable vessel while flying light. Mr. Coffinberry's naval training permitted him to judge closely of the monitor's sea-going qualities, and he is more than pleased with her in every respect. A cargo of 2,300 gross ton of ore was loaded on a 15-foot draft. This is 150 tons more than the steel steamer Griffin, (on whose lines the monitor was built,) can carry on that draft, and yet the Griffin was considered an economical, good carrier. The Andaste is expected back at this port on Friday.

The canard recently perpetrated regarding the handsome Cleveland yacht Wadena, is still without explanation from any source. The New York *Herald* publishes an account under date of May 13th of the arrival of the American yacht Wadena, at Samos, which for the unitiated we place as one of the Islands of the Grecian Archipelago in Lat. 37° 46′ 20″ N., Lon. 26° 59′ 15″ E, This yacht was built last year by the Cleveland Ship Building Co., and the engineer who took her across to Egypt from this port says she is the best seaboat that ever he has had his foot on.

Vincent A. Taylor has done noble work in this Congress for the river and harbor bill, also in obtaining a due recognition of the amount necessary to complete the east arm of the breakwater.

The River Machine and Boiler Works are building a new machine and boiler shop on a site which they have recently purchased near their present works. The new quarters are both commodious and convenient, as a switch track runs through to the works, and every facility is given for shipping. The machine shop is 65 by 150 and the boiler shop 50 by 150 feet. It is gratifying to note that Teare & Thomas, the energetic proprietors of the plant, have increased their business to so great an extent during the past year that larger shops and the addition of several new labor-saving machines has been found necessary to properly accommodate the marine patronage extended to this enterprising firm.

The handsome steel steamer Samuel Mitchell, built by the Globe Iron Works Co., and named after her owner, Capt. Samuel Mitchell, of Negaunee, made her official trial trip on Wednesday afternoon, and everything was found to work smoothly, as usual, with the "Globe" construction and equipment. Captain Mitchell has evidently got somewhat to windward of the builders, as her cabins are furnished in a superb style, and much more elegant than is usual in a freight steamer. She loads coal for Duluth, though she will probably be a steady trader to Marquette.

The Cleveland Shipbuilding Co. has launched, equipped, and put in service two steel steamers already this spring, and the freight monitor Choctaw, to be launched next Wednesday at 3 p. m. makes the third.

The Chase Machine Co. have supplied all new lake-built tonnage with the Chase automatic fog whistle machines, and placed one of their special hoisting engines, with vertical boiler, pumps and all connections, on the large schooner J. I. Case, of the Corrigan fleet. A brisk business in pumps is reported, and a large amount of boiler and steam pipe covering is being done.

The handsome yacht Say When, owned by W. J. White, has just been fitted out for the season. On her trial trip Wednesday, Captain Joe Todd and Engineer William Schumann found her to work A1. She has received a new Roberts Safety Water Tube boiler in lieu of the original Herreschoff.

The Cleveland Dry Dock Co. are busy pushing their enlarged dry dock to completion. A recent accident to the cofferdam has somewhat delayed work, but every effort is now being turned towards making up for the time lost. A large fueling scow, 150 feet in length, is under construction at the yards, which, with the outside repair work, keeps a staff of skilled labor regularly at work.

Vesselmen are sorry to hear of the death of Captain Brown, last season in the Northern Line. All who were acquainted with him speak of his kind and genial manner although he resided at Buffalo, he was well-known out of this port.

Mr. H. J. Livingstone, a mutual marine insurance expert, called upon several of the prominent vessel men of this port on Wednesday.

A committee of municipal officers met Colonel Jared Smith, the U. S. engineer in charge of this district on Wednesday and asked for his co operation in the matter of securing an opening in the west arm of the breakwater. This large area is fast silting up and unless some live water is permitted to circulate, the breakwater will soon have only a sand bank to guard. Colonel Smith will recommend the opening being made.

Several schemes have been suggested for getting clear of custom house work, among which are trip sheets, monthly reports and season statements; in fact, people who were never inside of a custom house undertake to advise vessel men and government officials on the subject, and yet, the only way to procure reliable lake statistics is to enter and clear from a port each trip. So well founded a system requires no third rate experimenting.

CHICAGO, ILL.

Masters of craft arriving in the night complain that the Chicago lights are all alike, and at so near the same altitude that one cannot be distinguished from another. The complaint of the master of the steamer Tacoma is the latest. The attention of the lighthouse board is called to these complaints.

The total disappearance of shippingmaster Eagan is a mystery which it is now tacitly allowed that time alone can solve. All sorts of rumors and beliefs are prevalent, and it is simply idle to repeat the versions heard on the street. The Lake Carriers' Association will probably take some action in the matter, otherwise it is but a seven days wonder, and the excitement is already subsiding.

The steambarge W. P. Thew burned off this port Sunday afternoon. She may be classed as a constructive total loss.

Grain freights are steady at 2c on wheat to Buffalo.

The steamer Charles Eddy and consort Newell Eddy, arrived here Monday. Capt. John Shaw was here waiting for their arrival, and police were placed on board to protect their non-union crews.

The steamer Sachem Capt. D. Nelson and consort the schooner Saveland were on the lumber market on Monday with over 1,500,000 feet of lumber between them.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

BUFFALO, May 18.—The Barnum, which was ashore at Hare Island, Lake Superior, has arrived here, leaking slightly.

Russell & Watson, manufacturers of the patent lens signal lamps, have just shipped the three complete outfits for the new boats building at Capt. James Davidson's yards, Bay City, Mich. This house is the oldest established signal lamp manufactory on the lakes, and their reliable work meets with a universal patronage.

Sturgeon Point Reef, Lake Erie, where the steamer John M. Nicol went ashore last Sunday, has been the scene of many disasters, the worst of which was the wreck of the steamer Dakota, November 24, 1860, in a terrible gale. The reef is about a mile and a half from shore, with a deep water inshore channel. Twenty lives were lost in the disaster. Harbor Master Doyle, who was sailing the brig American Union at that time, said an awful storm prevailed over all the chain of lakes the 23d and 24th of November, 1860, and that he, with 13 other vessels, left Chicago on the 23d for Buffalo. Of this fleet of 14 but 5 reached their destination. the rest being driven ashore or lost.

The tug Samson came in Tuesday, with the first raft of the season. It contained 1,500,000 feet.

Nearly every schooner carrying non-union men is put under police protection on arrival here. The Union have petitioned the City Council to remove police protection, saying such duties belonged to the United States marshal. The result of the petition is not known yet.

Sunday this end of Lake Erie was lost in the fog, and such tooting and screeching of whistles as was made by the steamers trying to find the harbor entrance, and the tugs trying to guide them to it, has not been heard here for a long time. It was in this fog that the Nicol ran on Sturgeon Point Reef, and had to lighter 20,000 bushels of wheat before being pulled off.

The captain of the barge Harvy Bissell lost $700 on the street, Tuesday last. He thanked most profusely the man who found and returned the money.

Captain Thomas Collins, of the steamer Lizzie Madden had $1,136 stolen from his cabin Monday. The steward of the boat, Charles Miller, was arrested on suspicion, and later confessed. All the money was recovered.

Dredging up "round the Horn" has been completed, and captains will be glad to know that 18 feet of water

(*Concluded on page nine.*)

SAULT STE. MARIE TOLLS.

Special Correspondence to The Marine Record.

TORONTO, CAN.—Your correspondent from Ottawa, who last week gave "A Canadian View" of the canal tolls question, is rather astray when he says that "a section of the Canadian press is alarmed at the proposed message of President Harrison recommending discrimination against Canadian vessels passing through the Sault Ste. Marie Canal." The fact iss that hardly one Canadian journal has given the subject editorial mention, it having been discussed mainly as matter of news. There is not the least alarm manifested in this country by anybody but the Canadian Pacific Railway Company, and they seem to have already changed the course of events at Washington.

The term "discrimination against Canadian vessels" illustrates exactly where the United States Government would err and violate the treaty of 1871 if they imposed tolls as suggested. Why the Dominion Government grants a rebate of 18 cents per ton out of the 20 cents charged to certain cargoes coming through the Welland canal, is to discriminate in favor of ports, not vessels. The cargo may be disembarked at a port on Lake Ontario for transhipment to Montreal and secure the rebate, provided affidavit is made that the grain goes to the seaboard via Montreal. The facilities for transhipment at Kingston are certainly not comparable to those afforded by Ogdensburg, but as the treaty stands, vessels coming from an American port must tranship at Kingston or lose the rebate. Craft of each country are treated alike.

If a United States vessel takes on a cargo of grain at Fort William, Port Arthur, or any other Canadian port of shipment, she is at liberty to tranship at Ogdensburg or any port; hence, if the latter place were conceded privileges which other ports have not, Canadian craft would get none of the Duluth grain, and American vessels would practically collar the Port Arthur and Fort William trade as well.

Should the Dominion Government interpret the treaty of 1871, as have some of the Americans, in the case of the Erie Canal, for instance, there would be no need for heroic measures, such as closing the St. Clair Flats and other waterways, to demoralize the United States inland marine. All that is requisite is to intimate to American boats when they apply at Port Colborne or Port Dalhousie to be locked through the Welland Canal, that the machinery shall work, provided they unload. They might go through light, certainly. "Fair play is a jewel," so it is said; but, perhaps, it is thought that marines have no use for jewels. However, for God's sake, let there be no asinine fighting between two countries which ought to be ruled by one government.

That the Canadian ministers are a gang of leatherheads, so far as nautical legislation is concerned, is thoroughly demonstrated by their tardy law-making toward meeting the liberal measure passed by the United States Senate for reciprocity in wrecking in 1878—it has taken our great minds nearly 14 years to act! But as they move slowly, probably they land heavily. Remember, that there is now a kilted regiment in Toronto, and if the United States persist too far with their tolls imposition, they may wake up some stormy morning to find themselves governed from Ottawa. J. A. C.

A VESSEL DRAFT INDICATOR.

An automatic register for recording the draft of vessels has just been placed on the market by John C. Pringle of St. Clair, Mich. The device is a very useful and practical one, and entirely obviates the difficulties of at all times conveniently determining a vessel's draft.

A marked departure in the usual line of mechanical patents adapted for vessel use is noticeable in this draft recorder, which is worked from the sea cock. A stand-pipe is placed in the hold of the boat into which the water from the outside may be admitted. Of course, the water in the pipe will stand on a level with the water outside of the boat. Inside of this pipe is placed a float which freely rises or falls with the water in the pipe; from this float is a chain which runs over a wheel geared to a second wheel, connected with the dial. The end of the chain is then carried down, and the pipe fastened to a counterweight or balance. As the water is admitted to the pipe below the light water line the float is not affected by the swell or sea-way, and the hand of the dial remains stationary unless the boat is made to draw more or less water, thus at all times determining easily and accurately the depth of water a vessel is drawing amidships.

There are many times when the draft to two or three inches cannot be ascertained, and as canals, rivers and shoal places have each and all to be passed in the system of lake navigation, it can readily be understood how useful a properly adjusted instrument of this description might prove.

If a master should err on the safe side when limited to draft he loses just that amount of freight, while on the other hand, if loaded too deep for passing through the canals, shoal spots, or entering a shallow harbor, the excess is frequently liable to cause detention and expense.

The patentee, Captain John C. Pringle, St. Clair, Mich., is attending to the sale and fitting of his invention, and we learn that Mr. John Thompson, engineer supply store, River street, Cleveland, will be the Cleveland agent for the automatic draft indicator.

TREASURY DECISIONS RELATING TO VESSELS.

FEES ON THE ADMEASUREMENT OF VESSELS.

Treasury Department, March 22, 1892.

SIR: This Department has considered the reports from your office relative to fees for the admeasurement of the barkentine Minnie Swan and the schooner R. and T. Hargraves, respectiv

The papers forwarded by you show that the barkentine has a forward house which includes the engineer's room, forecastle, cook's room and galley, and has a poop deck with a "cabin trunk" or "cabin head room," and also a large main hatch raised above the deck and measured as being available for cargo. The vessel's tonnage length is 158.6 feet. Your charge for admeasurement of seven spaces on the upper deck was erroneous. Fees may be charged by you as follows: 12 sections, at $1.50, $18; forward house, $1.50; poop, including "cabin trunk" or "head room," $1.50; main hatch, $1.50; deduction for crew space, $1 50.

In case of the schooner above named, there was a forward house containing engineer's room, engine room, forecastle and galley. The vessel had a poop with "cabin trunk" or "cabin head room" and ordinary hatches, her length being 167 feet. Your charge for admeasurement of five spaces on the upper deck was erroneous. Fees may properly be charged in the case as follows: 12 sections, at $1.50, $18; forward house, $1.50; poop, including "cabin trunk" or "head room," $1.50; deduction for crew space, $1.50.

To Collector of Customs, Belfast, Me.

DRAWBACK ON LOCOMOTIVE AND STEAM BOILERS.

Treasury Department, March 22, 1892.

SIR: On the exportation of locomotive and other steam boilers manufactured in whole or in part from imported materials, a drawback will be allowed equal in amount to the duties paid on the imported materials used in the manufacture, less the legal deduction of 1 per cent.

The drawback entry under which the boilers are to be inspected and laden must show the kind and description of boiler, giving dimensions of the same; also the number, size, shape, and guage of the various parts made from imported materials on which drawback of duties is claimed. Such entry must be accompanied by a draft or diagram of the boiler, illustrating the description given in the entry, by showing the measurements, number and relative position of the different parts named in the entry, which description and measurements shall be verified by the lading officer.

The manufacturer's declaration shall show the quantity and kind of imported material used describing the same by giving dimensions, guage, and weight of plates and other parts in condition as imported, and indicating the parts of the completed boiler in which the same appear.

Such declaration shall also show, separately, the quantities and values of the different kinds of resultant scrap, and the value at the factory of the different kinds of imported material used in the manufacture.

MARINE ELECTRICAL EQUIPMENT.

Among the many electrical inventions designed for marine equipment. The Fontaine Crossing Co., Detroit, Mich., make a specialty of manufacturing the Fuller slow speed dynamos and motors of every description.

It is now widely acknowledged that in this special line of mechanism slow speed means economy in running expenses, and for this reason the Fuller dynamo and motor has been found espescially adapted for steamboat work. Among the advantages pointed out as contained in the Fuller system is that it runs perfectly noiseless, causes no vibration, and is thoroughly automatic, requiring no resistance or regulating boxes.

The following well known lake steamers have been fitted out by the Fontaine Crossing Co.: E. C. Pope, Soo City, Minnie M. and the Detroit passenger boat Sappho, and the company will in future give more attention to the marine equipment than they have formerly done. The fact that Mr. Frank E. Kirby, marine construction engineer, is president of the firm, is sufficient guarantee for the satisfactory working and economy of any mechanism, electrical or otherwise, placed on board of a vessel.

Mr. Fuller, superintendent of the Fontaine Crossing Co., is an electrical engineer of wide reputation, and is the inventor of several modern electrical machines which are controlled by patents, his latest invention being a motor to run ventilating fans which can be run at three different speeds, and is reversible, so that the fan can be used as an exhaust or as a blower.

A BENEFICENT FIRM OF UNDERWRITERS.

Notwithstanding their century of existence in the commercial world of the United States, the Insurance Company of North America are not a whit behind the most enterprising business companies in the world. A few weeks ago we had the pleasure of recording a beneficent act of this firm in awarding a handsome gift to the donors of a grain cargo sent to Russia to relieve the famine distress in that country, and again do we note modern enterprise in the prompt donation of a sum of money to aid lake navigation.

The Lake Carriers' Association very properly desiring other interests to assist in defraying the cost of the private lights which it is necessary to place in operation on the rivers during the season of navigation, made an assessment on insurance companies doing a lake business, to help to maintain these lights. The Insurance Co. of North America, through the representation of their general agent at Chicago, Mr. George L. McCurdy, promptly recognized the justice of the demand, and was the first to respond in paying to Mr. Chas. H. Keep, Secretary of the Lake Carriers' Association, its proportion of the assessment, viz: $150. Wonder if anything can be had from London Lloyds on this score?

Notes.

Mr. James J. Hill, the Western railway president, related some time ago the incident of his conversation with the president of an Eastern railway, and added: "I might have continued to share his belief in the ultimate triumph of the railway over the steamship if I had not had occasion since that time to build and operate steamships for myself. These steamships carry 2,700 tons of freight on the present depth of water and make the run from Duluth to Buffalo in three and a half days at an aveaage cost of $120 per day; this is equivalent to .0015 cent per ton per mile. This means that we are doing today on the Great Lakes for $1 what it costs the best railway in the United States $26 to do. In other words, the general conclusion may be deduced from these facts that the larger the carrier and the deeper the waterway the less is the cost of transportation."

AMONG other things developed by the lake traffic is a land-locked marine, valued for insurance purposes at over $60,000,000. In this marine are one hundred and twenty-six vessels registering one thousand five hundred net tons or more, eighty-nine of which are built of steel, and thirty-two additional steel vessels of large tonnage are now being built. These vessels have no superior for strength in the world, and some of them, freight carriers, in their regular business between Chicago and Buffalo maintain a higher speed than the steamers of the Peninsular and Oriental Line are required to maintain which carry the mails between England, India, Hong Kong and Australia, receiving £350,000 therefor from the British Government, and £60,000 from colonial governments.

SAILING tonnage is by no means being driven off the ocean as yet, for according to the shipbuilding returns for the quarter ended 31st March last, compiled by Lloyd's Register of Shipping, it shows a net increase in the tonnage of vessels under construction of nearly 40,000 tons, as compared with the corresponding quarter of last year. This increase is entirely in respect of steel and iron sailing ship, which show an increase of 66,000 tons, while a decrease is observable in respect of steamers to the extent of 27,000 tons. The total tonnage now under construction is greater than at any period since March, 1890, and is an indication of the existing status between steam and sail.

The Inter Ocean Transportation Company, of Milwaukee, has filed a suit in the United States District Court against the propeller Hattie E. Pereue, of Chicago, for $3,500 for salvage. The libelant claims that on May 5, while off Milwaukee, libelant's vessel, the Minnesota, found the Pereue flying signals of distress. The Minnesota went to the assistance of the distressed vessel, and, after six hours' work, succeeded in towing her into Milwaukee. The entire cargo of lumber was therefore saved, but the owners of the Pereue refused to pay the claim of $3,500 for salvage and desire only to make the value of the assistance an ordinary towing contract.

Secretary Tracy has informed the Senate, in regard to a resolution asking whether bids for the construction of any naval vessels on the great lakes had been rejected for any reason other than those followed by the department, that in only one case had this been done, and that was the bid for the construc of the Naval Practice ship, the contract for which was given to a firm whose bid was $5,000 higher than that made by a Bay City, Mich., ship builder, on the ground that existing stipulations would not allow the department to award a contract for the construction of a warship on the great lakes.

THE excursion steamer Bon Voyage, last season running between Charlotte, N. Y. and Ogdensburg, N. Y. under command of Captain J. B. Estes, will commence running this season on June 11th making three trips each week. It is not determined whether Capt. Estes will again take charge of this fine paying little steamer, although it would be difficult to find a more competent master for the passenger service in that vicinity. Capt. Estes held charge of the steamer Ontario of the American Express Line for eighteen years, also the steamers Niagara and Cataract of the same line.

The crew of the Lake Michigan twin screw steel passenger steamer Virginia, of the Goodrich Line, number all told 64, persons, as follows: Master, 3 mates, 3 engineers, 4 greasers 8 firemen, 2 water-tenders, steward, clerk, 2 wheelsmen, 2, watchmen, 2 look-out men, 14 deck hands, 4 cooks, 2 cabin maids, 15 cabin boys and waiters.

Messrs. John Wiley & Sons, scientific publishers, 53 East 10th street, New York, announces as in preparation "Dynamometers of Power" by Prof. J. J. Flather, Purdue University.

LOCAL TAXATION OF VESSEL PROPERTY.

If foreign competing maritime nations do not subject their ships to local taxation the United States evidently cannot afford to do so. If Congress, under the power given it by the Constitution to regulate commerce, has the power, it should exempt, as instrumentalities of commerce, all vessels engaged in foreign or inter-State commerce from every form of local, State, or municipal taxation. Concede to the State the right to tax the instrumentalities of inter-State or foreign commerce in any degree, and you concede to the States the right to say that there shall be no interstate or foreign commerce, for the right to impose 1 per cent. of taxation involves the right to impose 100 per cent., or, in other words, the right to destroy.

THE DAKE DOUBLE RECIPROCATING SQUARE PISTON ENGINE—DAKE'S PATENT.

THE ADVANTAGES OF THE DAKE SQUARE Piston Engine for all kinds of work where a direct attached engine, from one to twenty-five horse power, is desired, is becoming widely and favorably known. THEY ARE NOT A ROTARY ENGINE, as their appearance at first glance, might indicate, but a perfect, DOUBLE RECIPROCATING engine, and occupying much less space than engines of the rotary type.

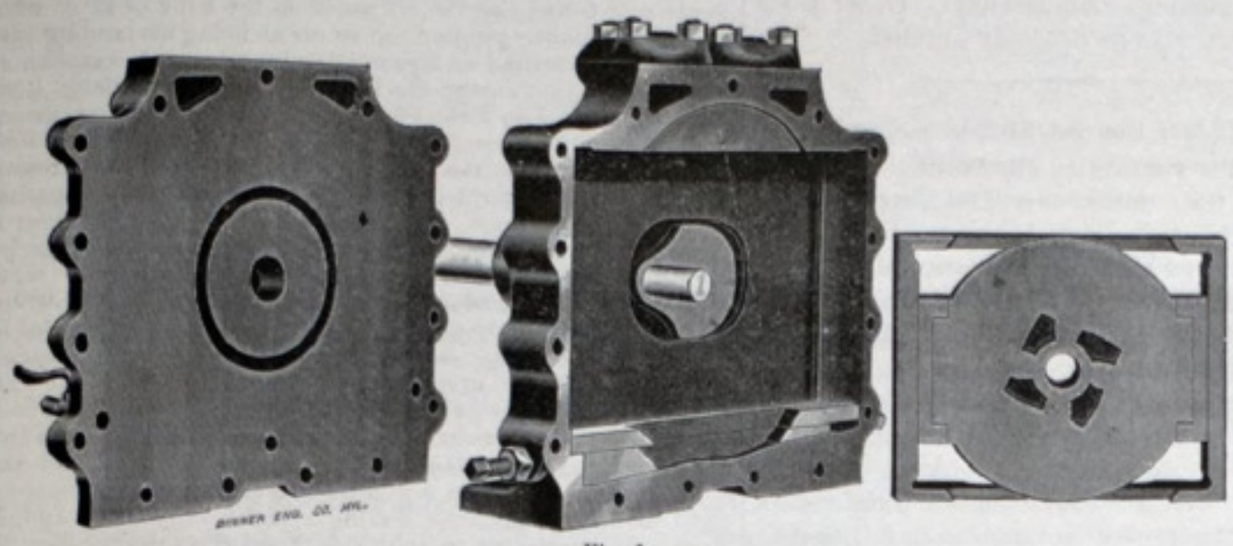

Fig. 1.

They are a most compact engine, and are in a form that enables them to be applied to any machinery at small cost. Four years service at high speeds, and nearly constant use during the time, has demonstrated their superior qualities in this respect. They are self contained, and in applying the engine direct to machinery, all that is required is to adapt the engine shaft to such machinery by coupling, or directly through the machine attached to, and bolt down.

The engine complete, with base and governor, is in the most

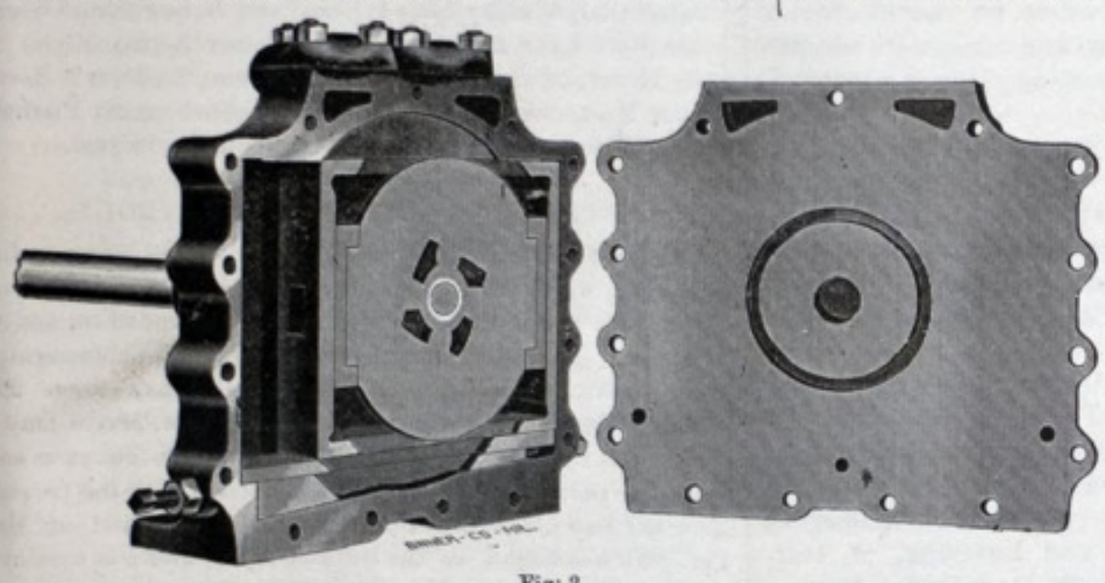

Fig. 2.

compact form for detached service. Self-contained in every way, they do not require expensive foundations, they are in all cases recommended by those using them, for that class of service. They are economical as to the use of steam, the ports being formed to cut off the steam at five-eighths of the stroke, and run three-eighths on expansion. This has been determined by the use of a first-class "indicator," and the ports of the different sizes of engines made to conform to the best economy without detracting from their power.

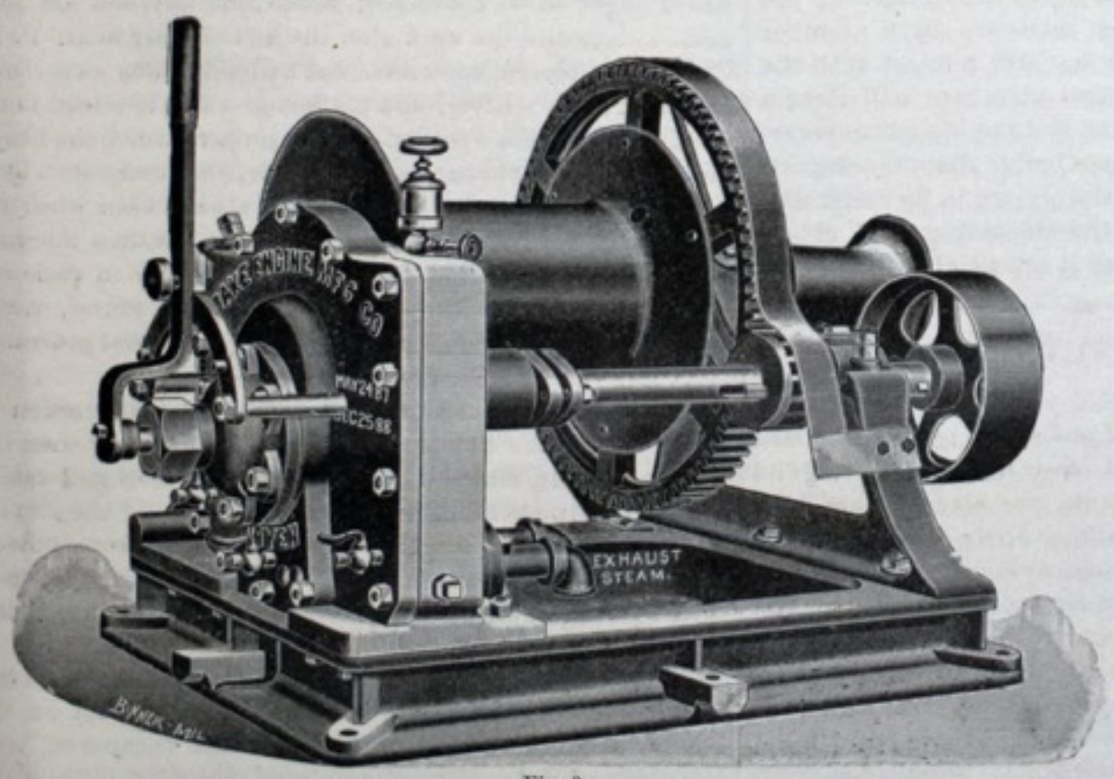

Fig. 3.

Figures 1 and 2 show the working parts of the engine. In Fig. 1 the pistons are removed, showing the interior of the case with crank in place. The crank revolves in the chamber behind the back of the interior of the case. This is supplied with oil and water from an opening on the back of the case just above the chamber, giving perfect lubrication to every part of the interior of the engine.

Fig. 2 shows the pistons in their proper position on the crank and carried to the extreme right hand side of the case. Both pistons, as will be seen, have a horizontal movement, sliding from side to side, and at the same time the inner piston, to which the crank pin is attached, has a vertical or up and down movement, the two movements imparting a perfect rotary motion to the crank. The manner of applying the steam is by channels cast on the cover, these lead down to the center of the cover, one opening into a central aperture, and the other into an annular opening on the inside of the cover, as shown in Figs. 1 and 2. Four channels are cored through the inner piston, one each leading to the top and bottom, and one to each end of the inner piston, the latter also leading through the ends of the outer piston. Four ports corresponding with the channels in the interior of the inner piston are cut through the face, (or side next to cover) of the inner piston in proper position to register over the central aperture in the cover, the steam entering the port in the inner piston, through the central aperture of cover and resisting against the side of the case, imparts motion to the crank, the port passing over the annular ring and exhausting into it after having done its work. As will be inferred, there are four distinct impulses of steam to each revolution of the crank, and the arrangement of the ports to the crank are such that each impulse of steam is given at a point where it has the greatest power. The expansion of steam is secured in the passage of the ports of the inner piston over the central aperture in the cover. The engines are made right or left hand as desired.

There is very little friction, and consequently slight wear on the pistons, from the fact that the steam pressure is INSIDE of the inner piston, instead of against it, making the pistons what might be termed, balanced valves.

The bearings for the main shaft and crank pin are in the form of bushings, and are made from the best quality of phosphor bronze. From the manner in which steam is applied to the pistons, the wear is slight compared with the ordinary engine. When they need renewing, the worn ones are driven out and the new bushings driven to place. Any good machinist can do this, and at a small cost to the purchaser. Good material is used in the construction of the engine. The crank and pin are made from the best quality of cast steel. Every part of the interior of the engine is fitted with the greatest care. The inner face of the cover, and all of the working parts of the engine, are ground surfaces, and with tools made especially for the manufacture of the "Dake Engine." Everything about the inside of the engine is made interchangeable and can be duplicated in case of accident on short notice.

Parties experimenting with a view of securing the best results in lighting railroad trains with electricity, headlights for locomotives, and all similar class of work, would do well to inquire into the merits of the "Dake Engine." An investigation will convince the machinist that these engines are par excellence. They have been applied in many cases to centrifugal pumps, where the conditions under which they worked were of the most severe character, and the results obtained were in every way satisfactory. They are strongly built, and so compact and self contained in every way that the ordinary jar of the railroad train, or the working of a vessel in a heavy sea does not affect them.

Fig. 3 shows the Dake Marine, Builders and Contractor's hoist, now largely in use and highly spoken of. The following testimonial is, among many other, self-explanatory:

JAMES CORRIGAN, MANAGING OWNER
STMR. AUSTRALASIA, BULGARIA, CALEDONIA, ITALIA, SCHR. JAMES COUCH
NORTHWEST.

Dake Engine M'fg Co, Grand Haven, Mich.

Gentlemen—We are well pleased with your hoisting engine. I would suggest that you put a flange on the outside of the spool for making connection with and running a deck pump. We had one keyed on a hoister at the Cleveland Ship Building Co.'s Shops, with a pin in, for working a plunger pump. We regard your hoister as a first-class deck-engine as it is; however, most engines are connected with pumps, and if you should make such an arrangement we should regard your engine as superior to any that we know of. Yours truly, JAMES CORRIGAN.

NOTICE TO MARINERS.

REPORTED SHOALS IN LAKE SUPERIOR.

Mr. Thomas A. Keefer, Inspector of Fisheries on Lake Superior, reports the existence of reefs, not marked on the Admiralty charts at three points on Lake Superior, as follows: One near to and south of Keshkabuon Island, in Thunder Bay. This is a rock covered with about two feet water, latitude N. 48° 31′ 10″ longitude W. 88° 50′ 10″.

A reef south west of Vert Island, in Neepigon Bay, covered with from 4 to 6 feet water, latitude N. 48° 52′ 25″ longitude W. 88° 5′ 0″.

The third reef is south of Corbay Point lighthouse, Bachewanaung Bay, covered with from 5 to 6 feet water. This reef seems to be a continuation southward of that shown on the chart, latitude N. 46° 52′ 35″, longitude W. 84° 36′ 25″. There is said to be a steamboat channel between this reef and the light house. The exact position of all these shoals will need further verification before being accepted as correct.

PORT HOPE LIGHT.

The light maintained by the Harbor Commissioners of the town of Port Hope, on the north shore of Lake Ontario, is now fixed white instead of fixed red and white. The following is a full description of the establishment. The lighthouse is a square wooden tower painted white, and stands on the breakwater protecting the east side of the harbor, at a distance of 110 feet from its extremity, latitude N. 44° 56′ 25″ longitude W. 78° 14′ 30″. The height of the tower, from the base to the vane on the lantern is 44 feet. The light is fixed white, and consists of two gas jets in an open lantern, at a height of 40 feet above the level of the lake. The light should be visible four miles from all points seaward. It was first established in 1868. Until 1st. December last the tower stood about 250 feet from the end of the pier, and within sixty feet of the end a red lantern was hung. At that time the lighthouse was moved to its present position and the red lantern dispensed with.

MEASURED MILE AT OWEN SOUND.

A nautical mile of 6,077 feet has been measured and marked out near the south-east shore of Owen Sound, 5¼ miles from the town, for the purpose of testing the speed of steam vessels. Each end of the mile is indicated by a pair of beacons painted white, with the letters M. M. on them in black, each front beacon of triangular shape, each rear beacon square. The alignment of each pair of beacons is approximately north-west magnetic. On the prolongation of the alignment of each pair of beacons, and three quarters of a mile off shore, is moored in 16 fathoms water a spar buoy, painted black and white in horizontal bands. The two buoys bear N. L. by N. and S. W. by S., and are distant nearly one mile from each other.

Wm. Smith, Deputy Minister of Marine and Fisheries, Department of Marine and Fisheries, Ottawa, Canada, 5th. May, 1892.

☞ All bearings are magnetic and are given from seaward, miles are nautical miles, heights are above high water, and all depths are at mean low water.

Pilots, masters, or others interested, are earnestly requested to send information of dangers, changes in aids to navigation, notice of new shoals or channels, errors in publications, or any other facts affecting the navigation of Canadian waters to the Deputy Minister of Marine, Ottawa, Canada.

COMMERCE OF THE GREAT LAKES.

The following are a few of the particulars recently furnished the House of Representatives by its Committee on Railroads and Canals:

"The traffic of these Great Lakes is simply amazing. Through the Sault Canal, at the outlet of Lake Superior, there passed, in 1890, 10,557 vessels, having a net registered tonnage of 8,454,435 tons. The actual freight tonnage was 9,041,213 tons, but the registered tonnage is used for the purpose of comparison. Through the Suez canal there passed during the year, 3,389 vessels, having a net registered tonnage of 6,890,014 tons so that nearly three times as many vessels and over 1,500,000 tons more of freight passed through the Sault Canal, away in the center of the continent, than passed through the Suez Canal, which is an international work and a highway for the commerce of the world. And it should be remembered, too, that the Sault canal was open but 228 days, and the Suez Canal was open, of course, during the entire year. And this represents the business of Lake Superior alone.

The entries and clearances in New York in 1889 represented 11,051,236 tons, and the entries and clearances in all the sea ports in the United States represented 26,983,315 tons. The entrances and clearances in London and Liverpool during that year were 33,430,617 tons. The entries and clearances on the Great Lakes in the same year, were, according to the United States census, 27,700,000 tons, and in 1890 the total freight traffic of the Great Lakes was 33,303,324 tons, exceeding by 6,000,000 the combined entrances and clearances of all the sea ports of the United States, Atlantic, Gulf and Pacific, and equaling the combined entries and clearances, both coastwise and foreign, of London and Liverpool, the great commercial centers of the world.

These shipments embraced 9,000,000 tons of iron ore, 5,000,000 tons of grain and flour, 8,000,000 tons of lumber and forest products, 7,000,000 tons of coal, and 4,500,000 tons of miscellaneous freight. This was carried by a floating equipment of 2,784 vessels, having a carrying capacity of 1,254,275 tons, and a commercial value of $48,809,750.

Of the total tonnage of shipping built in the United States during the year ending June 30, 1889, 5 per cent. was built on the Western rivers, 8 per cent. was built on the Pacific Coast, 41 per cent. on the Atlantic coast, and 46 per cent. was built on the Great Lakes.

The ton mileage of the lake marine for the season of 1889 was $15,518,369,000, and in 1890 it amounted to 18,849,681,384. The ton mileage of all the railways in the United States for 1889 was 68,727,223,146. It is thus seen that the ton mileage of the lake marine is more than onerfourth that of all the railways in the United States. The average rate of charges for freight received by all the railways of the United States for the year 1890 was nine mills per ton mile and at that rate the transportation by rail of the lake cargoes would have cost $169,647,132.

The average rate on all freights carried upon the Great Lakes is not over 1.2 mills per ton mile, making the total cost of water transportation $22,619,617,66, equal to an economy over the cost of transporting the same freight by rail of $147,027,514."

The Marine Record.

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ADVERTISING.

Rates given on application.

CLEVELAND, O., MAY 19, 1892.

No sooner has the bill admitting to American registry the two foreign built ships of the Inman Line been passed upon, than another application is in the Senate asking for the free entry of the old Clyde built steamer China, formerly in the trans-Atlantic service of the Cunard steamship Company, and later transferred to the Pacific Mail Line to ply between San Francisco and China. The precedent having been established it is difficult to conceive where the line can be drawn in this pernicious legislation, nor is there much weight in reiterating the fact that Americans can construct and equip their own tonnage. The Boards of Trade in every port that builds tonnage ought to register a remonstrance against this free ship evil before the shipbuilding industry suffers from worn out foreign importations.

THAT the whaleback steamer C. W. Wetmore has met with a casualty on the Pacific coast argues nothing regarding the merits or demerits of the special construction, and this reasoning may be driven home by the fact that all classes of tonnage are meeting with mishaps every day in every part of the globe. A premature verdict is set forth by those persons who say that the whalebacks are excellent for the lakes, but not adapted for the ocean trade. The Wetmore made her Atlantic voyage all well, and excited the naval architects on the other side to a revision of the rules of model and construction, inasmuch as a slight departure from the whaleback type is now building there. Adverse criticism of the type on account of one casualty is most unjust, nor can any competent judgment be rendered until a more extended ocean experience has been given this special type, as for instance, a fleet of twenty whalebacks could have been in the vicinity of the storm that damaged the Wetmore, and yet not have been subjected to the construction accident which caused the damage to that vessel. All interests are at one on the lakes regarding the sea-worthy qualities of the whalebacks, as they take the most that Lake Superior has to offer in the kindest possible way, and this too, whether light or loaded, those who have never traveled over this great lake may be assured that it is no "slouch" of a sea that gets up after a few hours' blow and sea-going qualities are called for regularly in the construction and handling of tonnage.

OFFICERS' LICENCES.

With the 20-foot channel an assured measure, and the improvements being made in the St. Lawrence system of canals, to say nothing of the deep water canal through United States territory to the coast, which is now being strenuously advocated, the day is not far distant when lake men will be called upon to hold coast and ocean licenses. With this outlook in view the younger members of the fraternity could not do better than qualify themselves as candidates for coast papers, in so far as the differences exist in either trade, and it is possible that the servitude qualification now necessary, may then be rescinded by the powers that be. There is every reason why lake papers should not be issued to officers from the coast, at least to deck officers, but there can be little or no cause for withholding ocean papers from lake officers when they are competent to pass the ordinary examination.

The men handling a boat and her engines on the lakes are the peers of their ocean brethren, if not vastly superior in point of handling in close quarters, and quite enough bad weather is experienced during the season of navigation to require the best knowledge of seamanship and engineering; indeed, in the latter class the general body are far in advance of their direct calling, as they are skilled machinists, as well as engineers. Such being the status of qualifications among lake officers, it is ridiculous to hedge round the granting of licenses with the servitude clause, and we hope soon to see the regulations so amended that any competent person may be eligible as a candidate for a license without being compelled to satisfy local inspectors of their time service in special trades or routes.

Hitherto there has, perhaps, been too much stress laid on the service part of the regulations, and competent men have been obliged to sacrifice valuable time to meet this requirement. Rather, would we wish to see the competency of the applicant properly tested, regardless of his time service, for the result, if honestly arrived at, would be the same. Time spent at any vocation is no fair criterion of a person's competency. Other tests of acquired skill should also be properly applied.

THE question of bridging the entrance to St. Louis Bay, Duluth Minn., is again coming to the front. The recent adverse report of the committee of the Corps of Engineers on the bridge question raised the issue of tunneling to Minnesota Point. The Duluth City Council has now decided to widen the approach at Rice's Point, and the railroad company will ask per mission from the council to build a drawbridge across the entrance. The fact that so permanent an obstruction cannot be built without the sanction of the Secretary of War, through the advice of the Chief of Engineers, U. S. A., is the only safeguard which the navigational and commercial rights can depend upon. The general commerce is entitled to every facility at this terminal point, and while the widening of the entrance, with the addition of well constructed concrete piers would enhance the value and safety of the port, no turnstile drawbridge scheme ought to obtain to hamper the future commerce of this entrepot of the western hemisphere.

MARINE UNDERWRITERS' ADJUSTING COMMITTEE.

An important meeting of adjusters on marine losses, was held in Detroit on Tuesday, and rules were adopted bearing on the methods of adjusting claims, which will be printed and distributed.

All prominent adjusters were present as follows: Messrs. Lovering, Hitchcock, Sandrock, Orr and Robinson, from Buffalo; Messrs. Manning, Scott, Bartlett, and Foote, from Cleveland; Messrs. Kellogg, Burton and Macdonald from Chicago; Messrs. White and McDonnell, of Detroit; Mr. Tuttle, of Milwaukee, and Mr. Jackson, of Toledo.

Capt. A. R. Manning, of Cleveland, was made permanent chairman, and A. H. McDonnell, of Detroit, was made permanent secretary.

The executive committee is composed of Robinson, of Buffalo, White of Detroit, and Tuttle, of Milwaukee. The arbitration committee is composed of Kellogg, of Chicago, Tuttle, of Milwaukee, and Lovering, of Buffalo. The charter members of the Association is composed of those adjustors who have been practicing five years or more. All others make application for membership and are accepted and rejected by the arbitration committee. A twenty-five dollar fee for initiation was charged. Also, annual dues of $15. The first annual meeting is stated for the first Wednesday in June, 1893, although the association can be convened at any time it may be deemed necessary. A common seal was adopted, and all adjustments must bear this seal, which will only be in the hands of members in good standing. In the event of an adjustment being made up by a member of the adjustment committee, he will not act with the committee, but the remaining two members will elect a third member of the association to take his place pending the consideration of the particular disputed adjustment. The lake adjusters certainly are to be congratulated on their combining, and the association will attain a dignity and prominence which it essentially merits.

THE FREIGHT SITUATION.

The past week has seen but little change in the freight market. The coal rate to the head of Lake Superior has risen to 45 cents, boats being chartered freely at that figure. The wheat rate at Duluth is now 3¼ cents, but elevators are loth to ship at the price. There is still a fairly firm feeling at Chicago. The ore freights have not changed. Considerable lumber is being shipped down the lakes at good rates. The following is a synopsis of going rates from Cleveland: Escanaba to Ohio ports, 75c; coal, Erie to Chicago, 50c; Toledo to Milwaukee, 50c; Ashtabula to Lake Linden, 50c; Toledo to Duluth, 45c; Huron to Washburne, 45c; Huron to Duluth 45c; Lorain to Duluth, 45c; Cleveland to Duluth, 45c.

Buffalo to Chicago 50c; Marquette, 45c; Toledo 25c. Canal freights are dull but firmer; wheat is 2½c to New York. Lumber—Oscoda to Chicago, $2; Oscoda to Cleveland, $1.50-head of Lake Superior to Toledo $2.50. Block stone—Kelley's Island to Sault, $1.50.

NOTICE TO MARINERS.

The steam fog signal at South Manitou, Lake Michigan, has been repaired and will be used in thick or foggy weather. By order of the Light House Board, Nicoll Ludlow, Commander, U. S. N., Inspector 9th Light-House District.

STAGE OF WATER AT SAULT STE. MARIE.

Mr. P. M. Church, of Sault Ste. Marie, Mich., who is well and favorably known to all vessel men in the Lake Superior trade, writing to THE MARINE RECORD, has the following to say regarding the fluctuation of levels at that point:

"I notice much comment on the low stage of the water in the Sault river. I would like to state that my father settled on the Sault River, near Lake George, in about 1845, and that at that time, according to his tel', the water was much lower than it is now. Last summer I visited the place of his residence and found two feet of water on the bank or shoal which he had frequently pointed out to me as being his landing place when he first settled on Sugar Island, and which was then dry land. Tradition among the Indians living on the Sault River is that the Flats on Lake George were at one time low, marshy lands, scarcely covered with water at all. This theory is somewhat carried out by the finding of stumps and dead trees on certain portions of the Flats, these apparently in the position in which they grew. Of course the low stage of water referred to was long before any Government improvements had deepened the channel. It seems hardly necessary to repeat the fact, which has been published so often, that the Government Engineers in improving the channels are very careful not to enlarge the cross section, always closing as much natural channel by filling removed from the artificial cut, as the excavation enlarges that part of the old channel. There can be no doubt that the water in the Sault River rises and falls from time to time, going down for a number of years, and then changing and rising for a number of years, probably caused by light or heavy rainfalls during a series of years. Judging from past experience on this river, and from the recollections of old citizens, which go back of any recorded observations, it is fair to presume that the water will become from 1½ to 2 feet lower before a change occurs, and it again begins to rise."

RECENT CHANGES IN AIDS TO NAVIGATION.

The monthly bulletin issued by the U. S. Light-House Board supplements the regular "Notices to Mariners" and contains changes at the following places this spring, detailed particulars of which have been given in former issues of the RECORD: Green Bay, Wis.; Grosse Pointe Fog Signal, Ill.; White Shoal, Whisky Island Shoal and Squaw Island Shoal, North End Lake Michigan; Point Betsey Light, Mich.; St. Clair River, off the mouth of Black River; St. Mary's River, Detour Reef; Seul Choix Point Light, Sheboygan; Pierhead Range Light and Two Harbors Light and Fog Signal.

THE ST. MARY'S RIVER PATROL.

The buoys in St. Mary's River, about which never-ending complaints were heard previous to the adoption of the patrol system, has this spring been thoroughly attended to, and we have yet to hear the first casualty through a displacement of these marks. Previous to the opening of navigation THE MARINE RECORD correspondent at Sault Ste. Marie notified our readers that the patrol boat would place the buoys as soon as the ice permitted, although the contract with the Government and pay for same did not begin until the first of May. The work was begun on the 18th of April, and was continued until all the old buoys which had been down during the winter and displaced by the ice, were in their proper position although no attempt was made to repaint them until later. This was done without extra cost to the Government, as it was very important that the buoys be in proper position on the opening of navigation, and if the contractor had waited until the contract time, it would have been nearly two weeks after the first boats passed through the River before the buoys were properly placed. For this work no compensation will be received from the Government. From the above showing the patrol ought to be continued; yet no appropriation has been made to maintain the work after the first of July next. P. M. Church, the present contractor, has had a life-long experience on the St. Mary's River, and his honest effort to attend to the work properly has resulted in the proper care of the buoys. Heretofore when change has been made, and complaints have been made against the buoys, it has always been when the contract has been taken by parties at prices less than the work was worth, and the only way for the contractor to come out whole was by neglecting the duty. This, of course, meant incalculable loss to the commerce of the northwest generally.

MUCH patriotic capital and newspaper discussion is made out of the hoisting of the national flag over the public schools, and the attention of the rising generation is directed to each emblem on the ensign. If the display of bunting exercises the beneficial influences now so widely admitted, would it not be well for all vessels in port to hoist their ensigns also, if not at any other time during the week, at least on Sundays. It is better to wear out than grow mouldy, with bunting the same as with any other material, and the extra wear on the ensign would amount to nothing when compared with the spirit of patriotism engendered thereby among our mixed population.

VOLUNTARY OBSERVERS.

The Chief of the Weather Bureau is indebted to the following masters on the lakes for important meteorological observations taken during the month of April.

Capt. John Leonard, steamer Mecosta; Capt. A. W. Reed, steamer Italia; Capt. John M. Gee, steamer City of Racine; Capt. A. B. Drake, steamer Brazil; Capt. C. W. Lockwood, barge B. L. Pennington; Capt. John Perew, steamer A. P. Wright; Capt. Daniel Buin, steamer Wallula.

(*Continued from page five.*)

can now be found in this hitherto troublesome locality.

The Codorus will not be launched until next week.

Captain Brown, last season in the Northern King, and one of the most affable and best liked vessel master on the lakes, died on Tuesday from the effects of an illness contracted last year.

The new whaleback steamer Thomas Wilson arrived here Tuesday with 86,000 bushels of wheat, the largest cargo brought down from Lake Superior this season.

PARKE.

TORONTO, ONT.

Special Correspondence to The Marine Record.

The steamers of the Hamilton Steamboat Co. are unable to stop at Oakville this season on account of low water, but it is hoped that this will not be the case very long, as the town council have let contracts for dredging the harbor so that there will be sufficient water in a very short time.

Owing to the low stage of water in the St. Lawrence, steamers are unable to come up from Montreal with more than half a cargo, as there is not more than seven feet of water at Morrisburg. If they could come up outside the canal they would be able to carry a larger cargo. The Government have been asked to place a tug at this point to help steamers up the rapids, but they have refused to do so on the ground that the low water is due to natural causes.

Much sympathy is expressed for Capt. Kelly, of the schooner Dundee, whose eldest son was drowned in the bay last week. When the accident occurred, a telegram was sent to the Captain at Oswego, but he had sailed for Toronto before the message could be delivered, and consequently he did not know of the sad fatality until he arrived here. That troubles never come singly was again exemplified in this case, for in addition to losing his eldest son by drowning, his youngest son, who had been ill for some time, received such a shock when he heard of his brother's death that he died the following morning. The two were buried last Sunday.

The propeller Acadia, Capt. A. H. Malcolmson, which is taking the place of the Celtic, arrived last Saturday from Montreal, and after taking on cargo, cleared for Duluth. Messrs. Mackay's Sons paid $24,000 for the Acadia to Capt. S. Malcolmson.

J. B. Herreschoff, the celebrated yacht designer and builder of Bristol, R. I., was in the city for a few days last week. During his visit here he was entertained at a dinner at the Toronto Club by Commodore Boswell of the R. C. Y. C., several of the most prominent members of the yacht clubs of the city being present.

The steamer Cibola, of the Niagara Nav' Co., commenced her regular trips across the lake last Monday morning. The Carmona commences running between Toronto and Charlotte on the 23rd instant and will make tri-weekly trips during the season. She has had several improvements made in her cabin and stateroom accomodation, has been thoroughly painted and is in excellent shape to handle the large passenger trade which is expected this summer.

Work on the Campana is progressing rapidly and it is expected she will be ready for a start about the 27th of this month.

The steamers of the R. & O. Nav' Co. were to have commenced their regular trips this week between Toronto and Montreal, but on Saturday their agent here was notified that owing to the low water in the Coteau Rapids they would have to cancel their trips for the present.

The Meteorological office of this city is working in connection with the Weather Bureau of the United States in ascertaining the set of lake currents, etc., and will distribute bottle papers among captains of steamers trading from the port.

The principal attraction in the harbor this week was the Government cruiser Constance, which arrived on Sunday en route from Owen Sound to Quebec, Capt. George May in command. The steamer presents a very neat appearance, but so many accounts of this vessel have appeared in the columns of the RECORD that any further description is unnecessary. After having some slight alterations made in her machinery by the Polson Iron Works Co., she left for Quebec on Wednesday.

A correspondent, writing to THE MARINE RECORD from Toronto, in speaking of the proposed levying of tolls on Canadian craft passing through the Sault Canal, states that this will not materially affect the Canadian marine interests with the exception of the steamers of the Canadian Pacific R'y Co.; of course it will affect these vessels very seriously, but it will also be detrimental to all Canadian steamers using the canal, and your correspondent has been very seriously interviewed by several steamboat owners regarding the appearance of the article in the RECORD. Your correspondence from Ottawa in last week's issue puts the Canadian view of the question very clearly.

The tug Jacman, while engaged towing a dredge and scows from Hamilton to Toronto last week, broke her piston rod when abreast of Oakville. Fortunately the tug St. George was also with the tow and took the outfit into Oakville and then brought the disabled tug to Toronto, where the necessary repairs were made and she is again in commission.

The tug Onaping of the Charlton Line left for Detroit last week after receiving her new boiler. SPARTA.

ESCANABA, MICH.

Special Correspondence to The Marine Record.

The new Lake Carriers' Association have opened a shipping office at this port, with Edward H. Nesbitt as shipping-master Headquarters will be established on Harrison Ave., directly opposite the postoffice. Mr. Nesbitt comes to us well recommended as an able, efficient and industrious officer, and vesselmen who frequented the port of Buffalo for a few seasons back will remember the good judgment and perfect management of the vessel owners' troubles, as displayed by him at that port, while in with H. F. Boyd.

The I. Stephenson Co., of Escanaba, have this week purchased the schooner City of Chicago, of Manager H. D. Hitchcock, of Chicago, consideration $8,250. The Chicago was built at Cleveland in 1861, and registers 327 gross tons. She loaded lumber at the company's mill for Chicago, and will hereafter engage in the lumber trade between Marinette and Chicago.

Iron ore shipments from Escanaba have, so far this season, averaged a little over 100,000 tons per week, with the carrying trade becoming more active each week. This fact, I think, is an indication of a very large output for 1892.

A Longshoremen's Benevolent Union has been organized in Escanaba with the following officers for the year next ensuing: President, P. A. McCarthy; vice-president, John Frederick; secretary and treasurer, John McDonald; dock boss, Wm. Kelly.

General Manager George Gane, of the Traverse City Escanaba line, was in the city this week in the interest of his line.

Coal receipts are steadily on the gain at this port.

The steamer Nellie commenced her season's run between this port and Chicago last week. She will make one round trip each week.

The steamer City of Grand Rapids arrived here early on Tuesday, Thursday and Saturday mornings, leaving in the evening of the same days. This is truly the short line to the East, saving twelve hours, and 140 miles, which fact will be highly appreciated by our people.

The red cane buoy which marks the northeast end of the shoal off Saunders Point (Gladstone) was carried away by the strong current last week, and vessels making the Gladstone docks should give the point a wide berth until it can be replaced.

The several steamers of the revenue service, will soon be fitted out, and masters of merchant vessels should be sure they are complying with the new rules respecting lights aft and names forward, otherwise fines are very apt to be inflicted.

Although she is specially designed for quick work at both loading and discharging her cargo, will it not prove a big feature if that big pig iron vessel can make two complete round trips per week between Marquette and Ohio ports? I am rather inclined to believe that the *Tribune* marine man is a little off, though.

The schooner Jane Anderson is again in commission and Capt. James Hewlitt will put her in the produce trade between the east shore and this port.

Low water in the Sturgeon Bay Canal has caused the Green Bay lumber fleet to prefer Death's Door passage.

Henry Collett's tug Thomas Spear was here Sunday after logs for his mill at Nicollet, Wis.

No. 5 ore dock is now being operated at full capacity.

There are forty acres of desirable land hereabouts that can be obtained for one dollar by the 'right party', if they will establish dry dock and ship-building industry thereon.

Another riot broke out at No. 5 dock Monday. The trouble was between the union trimmers and the crew of the steamer Kaliyuga, and arose from the fact that the captain of the Kaliyuga proposed trimming his vessel with his own crew instead of paying the trimmers 4 cents per ton. Numerous shots were fired, but the Kaliyuga, of course, was trimmed, and only one man was shot, he being a union trimmer, and that not seriously. UNO.

KINGSTON, ONT.

Special Correspondence to The Marine Record.

The barge Union, owned by the Montreal Transportation Co., is on Davis' dry dock undergoing a very expensive overhauling to fit her for the St Lawrence river trade.

The steamers of the R. & O. Nav. Co., were to commence running on the 15th., but owing to the lowness of the water between Kingston and Montreal. This order has been countermanded, and they will not start before June 1st. The past winter new paddle wheels have been placed in the Spartan, and while moored to Swift's wharf on Saturday, testing them, the mooring chocks carried away, and before the engine could be stopped very serious damage was done to the side of the steamer.

The steamer C. Anderson, long in use as a ferry between Coteau and Valleyfield, has been chartered for the use of the engineers who are to have charge of the work in the Galops Rapids. The Anderson is being thoroughly overhauled at the government workshops on the south side of the canal, preparatory to the heavy work she will have to do in the rapids.

On Sunday the tug Flora took fire while towing the ship Savannah up the St. Lawrence river, and the crew not being able to extinguish it let go the tow line and beached the tug on the Island of Orleans, where she burned to the water's edge and became a total loss. In trying to scuttle her engineer, Barras was badly burned. The Flora was built in 1867 at Buffalo, was owned by J. H. Powell, of Quebec, valued at $6,000, and partly covered by insurance.

A great many grain carriers from the west came into port on Sunday. The K. & M. F. Co. received the cargoes of the Fay and the Rhodes, the steamer Marquette and consort Kelley and the Langdon, all with wheat, at the M. T. Co. the steamers Omaha, Columbia, Myles, and schooner Kewatin, but there is a scarcity of barges to carry the grain to Montreal, and some of the largest cargoes had to be transferred to Ogdensburg for transhipment. The grain will be there put in store until barges can be found to transport it.

In the Court of Appeals at Toronto, the Wright vs. Collier case was decided last week. In giving judgment the judge paid a very high compliment to Capt. Thomas Donnelly, steamboat inspector of Kingston. He said that Judge Rose should have taken his evidence as an authority on marine matters when he was under oath at the trial, a truism and compliment that THE MARINE RECORD man is in justice bound to endorse. MAGNET.

DULUTH, MINN.

Special Correspondence to The Marine Record.

In the 25 days beginning with April 20th and ending with May 14th, more wheat was shipped from Duluth elevators than any previous records given to any grain market. I have figured up the total so sent and find it 11,750,000 bu. in the 3½ weeks. This is an average of about 3,000,000 bu. a week, and while Chicago has forwarded an amount of all grains equal to that, it has never sent out so much wheat alone. During this time, departures varied from 1 and 2 a day to 15 and 18, and on one day the elevator records show 815,000 to have cleared, while the state inspection account for the same day was somewhat over a million bushels. The largest cargo taken out was 85,500 bu. on the barge 118, while the Gilcher took the biggest steamer load, 84,000 bu. These cargoes were taken on a draft of about 13.3, and could have been increased fully 20 per cent. with plenty of water. On May 15, a half cent storage charge accrued on all wheat in elevators here, and it is probable that shipments will be lighter henceforth. In fact, charters are quiet and dull at 3¼ to 3½ cents to Buffalo.

Wheat Stocks are now down to 6,309,000 bushels, the record showing that a year ago there were only 2,523,000 bushels here.

On Thursday the steam barge 119, named the Samuel Mather will be launched. She is the same size as the Thomas Wilson, launched week before last, and will be driven by a Frontier Iron Works Engine. The James B. Colgate will be the next launch. She is the size of the Mather, and will be driven by a Marinette Co's triple expansion engine built in Duluth. Soon after the two Soo line boats, the Pillsbury and Washburne will go into the water. They will be launched on the same day.

The year's lumber shipment has begun. Three vessels are at the Rust-Owen Co.'s dock, after last year's cut, part of which goes to Chicago, and part to the East. There are 10,000,000 feet of dry lumber on the Mitchell & McClure dock that is all sold for immediate delivery in Buffalo and Tonawanda.

We have received from the Joseph Dixon Crucible Co., Jersey City, N. J., a copy of their latest illustrated catalogue of graphite productions, containing a cut of their well developed graphite mines at Ticonderoga, N. Y., and their plant at the outlet of Lake George into Lake Champlain, where they have a mill six stories high and 90 feet square for the perfecting of their graphite. It would seem that every possible use to which graphite may be placed has been discovered by the Joseph Dixon Co., and to prevent rust and abrasion on wire rope a page of testimonials say that it is an absolute necessity.

The powerful tug Favorite, owned by the Swain Wrecking Co., towed the steamer John B. Lyon from where she stranded near Sand Beach to Port Huron.

William Black, of the well known Detroit optician firm of L. Black & Co., died in New York last week from the effects of a severe cold. His remains were forwarded to Detroit for interment.

One answer to an advertisement in the Deadwood "Pioneer" for a "girl for light house work" contained an inquiry as to whether "boats ran from the lighthouse to the city."

MUTUAL MARINE INSURANCE.

1311 Corcoran St., Washington, D. C., May 13, 1892.

Editor of The Marine Record.

Your articles in advocacy of Mutual Insurance deserve serious consideration by Lake vessel-owners. Last year I laid out to present our ship-owning friends in my annual report as Commissioner of Navigation full information of the working of the marine insurance business in all the countries of the world, and procured through the State Department special reports on this subject from all our consuls abroad. These were of great interest, and would have afforded the best kind of practical instruction to our people. I can say now that mutual insurance is the best and cheapest. Denmark has, I think the best guarded system, and one very effective. In my book, referred to by your kind notice as forthcoming, I shall treat the insurance branch of the shipping question at some length, though I shall not be able to show what was intended by the consular reports gathered for my report, for the simple reason that we now have as guardian of the shipping interest in office at Washington a Secretary of the Treasury, (of the G. O. P., I am sorry to say), who has such a want of interest in our marine and its improvement that he has suppressed my report with all the special and general information in it. Hundreds of thousands of dollars and tons of books are issued every year by the Agricultural Department for the instruction of farmers, but the very same political demagogues who put the country to this expense (and shipping people pay their share) begrudge one cent for the edification of our interest. I suppose the idea of Mr. Foster is that he can gather no wool from the shipping interest for his sack of political power. He is greatly interested in the re-nomination and re-election of Mr. Harrison, and has therefore provided himself with a political fugleman in my place, who will never write him anything for the enlightenment of shipping people, for about the same reason that Jack did not eat his supper. Mutual marine insurance, rightly managed, will save thousands of dollars to our lake ship-owners that are now sent out of their community, and some of it to foreign countries, and is a reform that is bound to come. Yours Respectfully, WM. W. BATES.

ELECTRIC LIGHTING.

It has now become generally acknowledged that no steam-vessel to-day is regarded as fully equipped without the electric light for ordinary lighting, and in many cases a search light as a means of protection from dangers incident to navigation. The great value and practical advantages of the use of the incandescent lamp on shipboard are now demonstrated facts. The time of the oil lamp, with its uncleanliness, even with best of care, and its dangers to enormous properties, concentrated, so to speak, in a single steamer, is gone. The system at the present time as a means of protection from fire at sea cannot be overestimated, to say nothing of the labor saved in keeping the oil lamps clean and in order.

Any or every part of the ship is lighted by the turning of a switch, and in time of necessity, the most inflamable of cargoes may be examined by the aid of the incandescent lamp with absolute safety. Lights are located in the engine-room among the moving parts of machinery, where formerly the hand oil lamp had to be used, and so the eye of the engineer has at all times ready access to every detail of his engine.

The search light, or projector, located on the pilot house, under the control of the pilot, shows any vessel approaching, buoys, docks and wharves, or the coast along which the ship is running, as if by daylight, and its value in time of fog, and as a means of signaling, cannot be too highly estimated. Of necessity, everything used on shipboard must be very substantially constructed, and adapted to withstand any atmospheric conditions to which it may be subjected, and to accomplish these several results, electrical companies are ever on the alert. The dynamo and engine are now built on one bedplate, coupled directly together, and no belts are used.

Among the most successful electric appliances, are to be found those of the Thomson-Houston Co., their several types of dynamos and engines having passed the severe tests of the United States Government Inspectors of the Bureau of Equipment with entire satisfaction, and are now in use on the United States cruisers and a large fleet of merchant steamers.

THE RIVER AND HARBOR BILL.

WASHINGTON, D. C., May 16.—Notwithstanding the asinine cry of economy which has been raised during the present Congress regarding the river and harbor bill, which, by the way is the only measure where niggardliness is rank extravigance of the nation's resources, the Senate committee has seen fit to change the appropriation made by the House according to the ollowing figures, for the great lakes: Harbors: Michigan—Grand Haven, $50,000; St. Joseph, $21,000; Wisconsin—Green Bay, $15,000; Kewaunee, $10,000. Minnesota—Duluth, $45,000; Agate Bay, $20,000. Rivers—Wisconsin—Sturgeon Bay Canal (new) $81,833. Minnesota—Survey Lake Superior and Mississippi Canal (new) $10,000. Decrease—Buffalo, N. Y., $75,000; Saginaw, Mich, $25,000. The following appropriation was stricken out: Petoskey, Mich., $30,000.

OCEAN WAVES.

The highest waves, as might fairly be expected, are met with in the lone Southern Ocean along the 40th. parallel of south latitude, where they have a good fetch and but little land in the way. Scoresby, more used to narrow northern waters, marvelled at the high waves he saw, while a passenger on board the Royal Charter, between the Cape and Australia. Tho height of waves is said to vary in the several oceans, and exact measurements tend to prove that exaggeration is not wanting in popular descriptions, whether poetry or prose. An encyclopædia of repute gives twenty feet as the maximum altitude of ocean wave summits, whereas Dumont d'Urville asserted that he had met with one which was 100 feet in height from trough to crest! In January, 1875, Captain Kiddle, of the steamship Celtic, when in 48° N., 40°W., found from reliable observations of several waves, that their mean height was no less than seventy feet, with a velocity of twenty-five knots an hour. The late Admiral Fitzroy, of "Weather Book" fame, had previously measured waves of this stupendous height; and quite recently the Hon. Ralph Abercromby, a very careful observer, used to seawork, has measured waves nearly fifty feet high. It would appear that from thirty to forty feet is about the average height of ocean waves in a storm; but, as we have pointed out, exceptional waves certainly do occur, and these may be quite seventy feet high, as recorded by such eminent authorities as Kiddle and Fitzroy—*Nautical Magazine.*

ECONOMICAL TRANSPORTATION.

Mr. S. A. Thompson, secretary of the Duluth Chamber of Commerce, in his evidence before the Committee on Railways and Canals, stated that

"Boats now on the lakes which can carry 2,800 tons on the present draft of water, could carry 4,800 tons if there were twenty feet of water available, and with no additional expense but a little increase in the coal bill. Referring to the coal question, I will call attention to some facts. I find that on a number of the best vessels of the prevailing type on the lakes the average fuel consumption for 1891 was almost exactly at the rate of 1 ounce of coal per ton per mile, while for some vessels of the "whaleback" type, the new type invented and built at the western end of Lake Superior, I have a statement from the manager of the company recording the consumption of coal for the past year as less than one-third of an ounce per ton per mile.

"Another fact which is not generally known is that the best steamships on our lakes maintain a faster average rate of speed per hour than is maintained by any railroad on freight trains. Of course freight trains run about 16 miles an hour while they are running, but they must side track to get out of the way of passenger trains and there are other causes of delay, so that they only get an average rate of speed of 9 miles per hour, while the best modern steamers on the lakes make the run between Chicago and Buffalo at the rate of 16 miles per hour for the whole distance; so we are able to carry goods in less time than is required by the railroads and to do it at one twenty-sixth of the cost."

WORLD'S FAIR NOTES.

Prof. Charles D. Walcott, of the United States Geological Survey intends to have at the World's Fair an exhibit which will illustrate a section of the earth's crust by specimens of the rock strata placed in their proper relative positions, and by collections of the characteristic fossils shown in connection with the formations in which they are found.

Helena, Montana, will send to the Exposition a meteor, discovered near that city. It is composed of nickel and magnetic iron, and is in two pieces of ninety and seventy pounds respectively. It is reported that when found these pieces were in a hole in the ground large enough to contain a house, from which fact it is inferred that the meteor exploded when it struck the earth.

From Holland an offer has been made to the Holland Society of New York, and the St. Nicholas Society of Brooklyn to construct and present to them an exact reproduction of the Half Moon, the ship in which Henry Hudson discovered and explored the river which bears his name. The societies named have accepted the offer and are planning to fit up the ship as a club house, and to take it to Chicago both to be exhibited and to be occupied by their members during the Exposition.

A BOARD OF COMMERCE AND NAVIGATION.

The English merchant marine have been greatly aided by the watchful supervision and regulations of the British Board of Trade, whose president is a member of the cabinet. In the executive department of our Government we have no board or bureau with similar duties and powers, and none which is required by law to even keep a watchful eye over the interests of our shipping, except for purposes of collecting the revenue. Whether it would not be wise to establish in the Treasury Department a bureau, or board of commerce and navigation, of which the Secretary of the Treasury should be the official head, with powers and duties in some respects akin to those of the British board of trade, is already under consideration by the committees on commerce of the Senate and House, and will undoubtedly receive the attention it deserves.

The elevation of the lake level or surface for any given year is a function of the volume of rainfall on the drainage basin, the amount of evaporation and the outflow through the river system.

The Cruiser Curlew, building to the order of the Dominion Government, at Owen Sound, Ont., will be launched on Monday May 23rd.

ON BALANCING MARINE ENGINES AND THE VIBRATIONS OF STEAM VESSELS.

Mr. A. F. Yarrow presented recently before the Institute of Naval Architects,* a very able paper descriptive of a series of practical experiments which he has lately conducted, relating to the causes of vibration in screw propelled vessels. The paper is illustrated with a number of diagrams. One of the instruments employed to show and record the vibrations consisted of a weighted drum hung in elastic slings and operated by clockwork, with paper and a pencil, the apparatus being so arranged that the pencil was made to shake by the vibration of the vessel, but the drum and paper remained at rest. In this way the pencil was made to mark the vibrations on the paper. The experiments were made on board of a fast torpedo boat in which the engines made 248 revolutions per minute. The author found that the vibration was not due, as has been heretofore commonly believed, to the action of the propeller in the water, but is caused by the unequal balancing of the machinery—of the cranks, piston rods, cams, etc. So great was the vibration of the experimental vessel that when held fast by cables in still water, the propeller being removed and the machinery set in motion, the vibration of the hull was communicated to the surface of the water, and the waves so produced photographed. Different parts of the hull of the vessel showed different degrees of vibration in the water; that is to say, the shake varies in intensity at different points in the length of the hull. There are places where it is excessive, and places, termed "nodes," where it does not exist. It shows the vibrating sections and the nodes, and the effect produced on the water. The vessel on which these experiments were tried was 130 feet in length, 13 feet 6 inches beam, 1,100 h. p., and had a speed of from 22 to 23 knots.

Mr. Yarrow shows that by the application of balancing or bob weights and devices to the machinery the vibration can be very greatly reduced. The vessel was tried under three conditions: First, without any balancing weights whatever, with engines as usually constructed; second, with balance weights on the cranks only; third, with balance weights on the cranks and with bob weights. The use of the weights effected a very great reduction in the vibration, and engines running at a regular speed like the Atlantic Liners, might be compensated so as to reduce vibration to a mimimum.

*Read at the Thirty-third Session of the Institution of Naval Architects, London, April 7th.

STANDARD TECHNICAL BOOKS.

	Regular Retail Price.	With The Marine Record one Year.
Beeson's Inland Marine Guide	$1.00	$2.50
Law of Bills of Lading	5.00	6.50
Patterson's Nautical Dictionary.	5.00	6.50
Drawing & Rough Sketching for Engineers by James Donaldson	2.50	4.00
Scott's Coast Pilot (new edition)	1.50	3.50
Simple Elements of Navigation	2.00	3.50
"Wrinkles" in Practical Navigation	6.00	7.50
Practical Seamanship	7.50	8.00
Thurston's Manual of the Steam Engine, part 1	7.50	9.00
Thurston's Manual of the Steam Engine, part 2	7.50	9.00

ON SIDE LIGHTS.

It has been suggested that if ships were obliged to carry two lights on each side instead of one, as is now the case it would tend to insure the safety of life and property on the water; and several systems for exhibiting double side lights have been devised with a view to the further protection of vessels from collision with each other.

It is claimed that under the present system, when vessels are approaching each other in dark weather under sail, if the hull and spars cannot be clearly distinguished the vessel's course is not indicated with sufficient accuracy by her one red or green side light; and that by having two lights of the same color placed on the ship's side, at some distance apart, the direction in which she is steering or any change of course would be more clearly pointed out. Trials by experts and favorable reports have been made recommending the adoption of some plan of double lights, which doubtless has certain advantages over the present system. The great objection to any change from the existing practice, which has become so well known and understood by seaman of all nations, seems to be that more or less confusion might arise while the change is being affectkd, and collisions result from this reason before the system becomes familiar to the practical seamen.

Maritime Law.

Circuit Court, S. D. Ohio, W. D. February 23, 1892.

1. Mortgage of Vessel—Actual Notice. A mortgage of a vessel is valid as against persons having actual notice thereof, though not recorded in the collectors office, as required by Rev. St. U. S. §§ 4192-4194.

2. Same—Failure to Index. Under those sections, a mortgage which is actually recorded is constructive notice, though it has not yet been indexed.

3. Same—Actual Notice—Prior Bona Fide Purchaser. Where one purchases a vessel with either actual or constructive notice of a mortgage, it will not be presumed in his favor that his vendor, who purchased before the mortgage was recorded, was a *bona fide* purchaser without notice, and the burden is on him to show that fact.

4. Same—Assignee of Mortgage—Prior Equities. One who takes a mortgage of a vessel by assignment after the recording of a mortgage of earlier date cannot protect himself from the priority of its lien, except by clearly showing that some one of the owners of the vessel through whom he acquired his lien was a *bona fide* purchaser without notice.

District Court, E.D. Pennsylvania. February 2, 1892.

1. Seamen—"Disrating" by Master—Evidence. The "disrating" of certain seamen by the master was sustained by his testimony, the mate's, and contradicted by the testimony of each seaman disrated, as regards himself, but not as regards the other seamen. The appearance of the seamen did not impress the court favorably. Held, the disrating would be accepted by the court in computing the wages due.

2. Charges against Steward—Breakage. A charge for "breakage" against a vessel's steward is unusual, and will not be allowed.

BUTLER, District Judge. It is difficult to reach a satisfactory conclusion from the evidence presented. If the libelants' offer to submit the controversy for the settlement to the shipping commissioner had been accepted, the chances of reaching a just result would have been increased. With the parties before him, in person, that officer would have had a better opportunity of getting at the truth than the court (with depositions alone to look to) can have.

While I feel reluctant to accept the master's "disrating" of some of the men, the evidence does not seem to justify a disregard of it. His testimony and the mate's sustain it, and while each of the libelants contradicts this testimony so far as respects himself, they do not testify for each other to a material extent; and what I saw of these men at the trial of their prosecutions against the master, did not impress me favorably. The settlement must be based therefore on the rates which the master has fixed—as shown by the log and his testimony.

The charge against Henry, the steward, of $10 for breakage, should not be allowed. Such charges are unusual; and if he assented to it as the master testifies, it was in view of the prospect of an immediate settlement—which he could only obtain by assenting to the master's terms.

IT is a paltry and erroneous argument to state that little knowledge of seamanship is required in men handling lake steamers as the most mature judgment and experience are necessary to guide the machine propelled hull over the ground in stormy we ather. The adjustment of sail power, as in tacking, wearing, box-hauling, club-hauling, etc., etc., is superseded by a keen sense of the action of the elements on the body being propelled, and the rate of speed, action of the sea, trim and characteristics of the vessel, etc., have each to be taken into account, and regarding this latter feature, it has even been found that certain steamers would heave-to best in the trough of the sea, a position of great danger to a sailing vessel. Steamers require no handling in bad weather, aye! the engine room tells a different tale, and deck officers may greet such a story with the contempt it deserves, owners also can foot the bills after their steamers have experienced a hard fall, but, good seamanship and a watchful experienced care in the engine room saves many a powerful steamer from serious casualty just the same, which leads us to observe that those who think they know all about their profession are very liable to require instruction in the first elements thereof.

A GEOGRAPHICAL EYE OPENER.

It ought to awaken some of our legislators to learn that above Niagara there is 100,000 square miles of fresh water with 4,000 miles of coast penetrating from tide water at New York, 1,400 miles into the heart of the continent and placing its western extremity within 1,700 miles of the Pacific coast. Eight States, with a population of 26,000,000 people border on the lakes, and more than 6,000,000 people in the West and Northwest largely depend upon the commerce of the lakes, and while no approximate figures have been framed showing the number of people engaged in the industries appertaining to lake transportation, yet, there are probably as many people as is contained in the British metropolis depending on lake commerce for their daily bread.

THE stage of water at St. Mary's Falls canal has miraculously increased since a committee was appointed by the Lake Carriers' Association to inquire into this matter.

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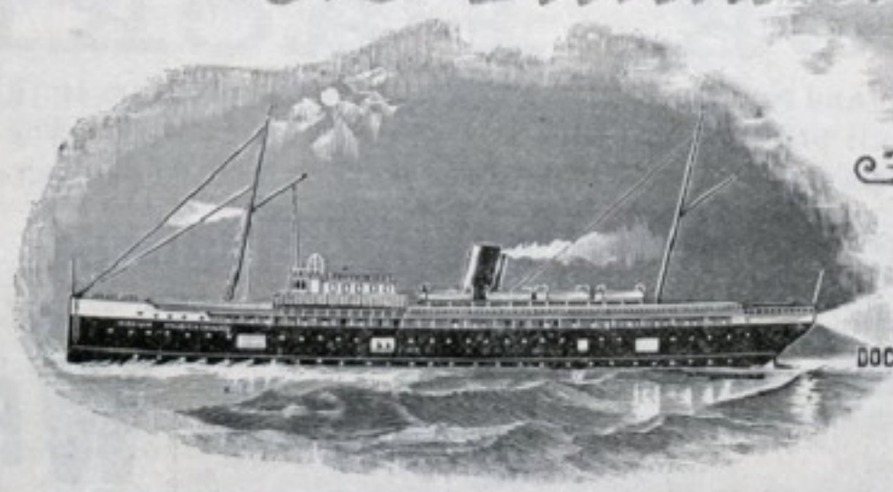

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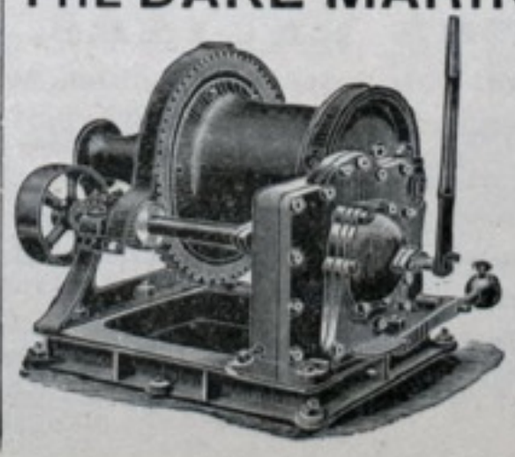

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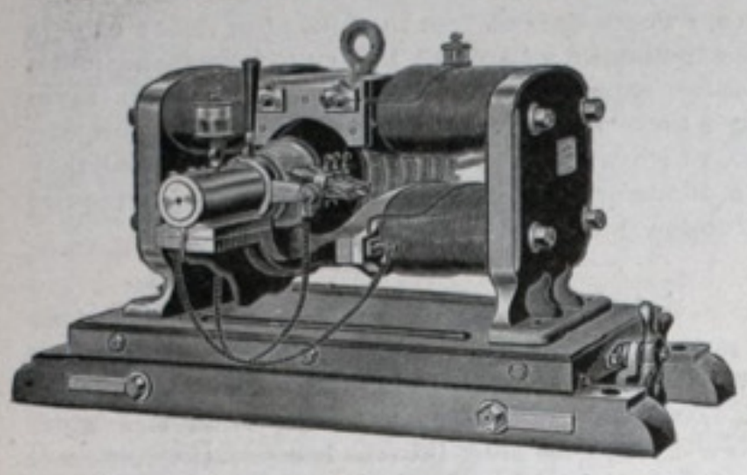

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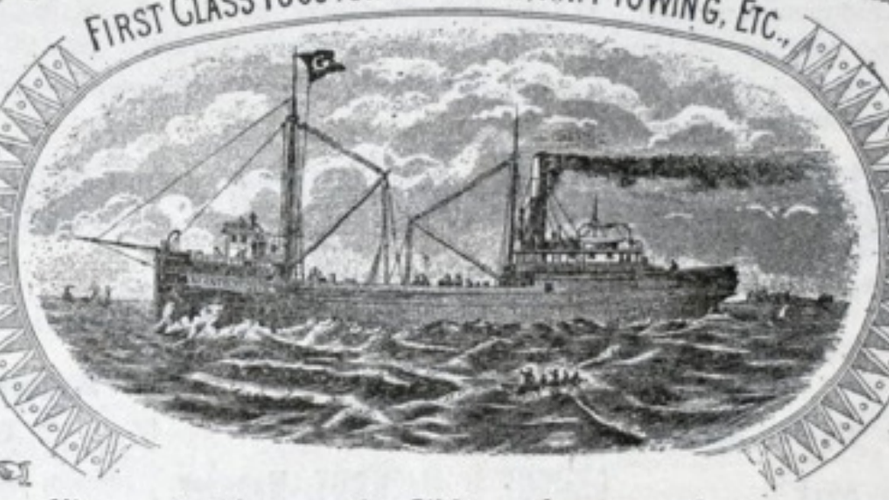

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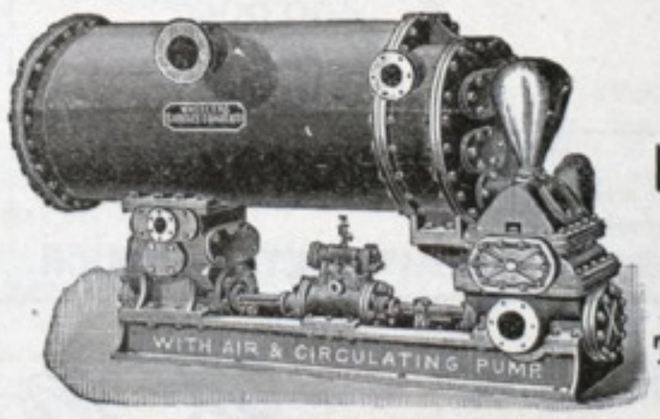

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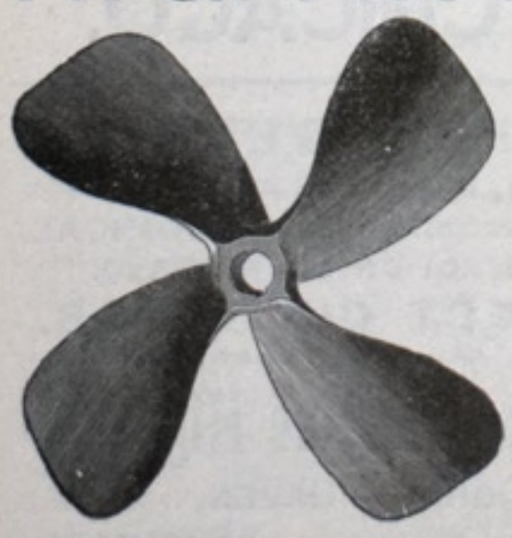

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